

SCOPE OF WORK ADDENDUM

The purpose of this Scope of Work Addendum (“Addendum”) is the same as the original Scope of Work for the Agreed Order, which is to complete a Remedial Investigation/Risk Assessment/Feasibility Study for the Quendall Terminals Site. However, certain tasks described in the existing Agreed Order have been completed, including:

Task 1: Preliminary Cleanup Levels and Alternative Screening;

Task 2 (partial): RI Work Plan Preparation;

Task 3: Remedial Investigation;

Task 5: Sediment Evaluation; and

Task 9 (partial): Progress Reporting.

This Addendum describes those risk assessment (“RA”) and Feasibility Study (“FS”) tasks that remain to be completed. Specific task details will be documented in the RA/FS Work Plan. A schedule for completion of the RA/FS is presented in this Addendum.

Task 2: RA/FS Work Plan Preparation

A Work Plan for the RA/FS will be prepared in accordance with WAC 173-340-350 and 173-340-357. The plan will describe the work and schedule to complete the RA/FS tasks as described in Tasks 4 and 7 of this Addendum. While the site characterization effort to date has been substantial and sufficient for the RI, some additional data are needed to complete the RA and FS. Accordingly, the Work Plan will include required data collection components.

Deliverables:

Draft and Final Work Plans for an integrated RA/FS (including Pilot Study Work Plans).

Task 4: Risk Assessment

MTCA presents methods for determining cleanup levels in WAC 173-340-700 through 173-340-760. The use of a risk assessment to derive cleanup levels and to evaluate cleanup action alternatives is outlined in WAC 173-340-700(6)(c) and 173-340-357, respectively. A site-specific risk assessment will be performed in accordance with WAC 173-340-708 and 173-340-7490, respectively.

Deliverables:

Draft and Final Risk Assessment Reports (combined with FS Reports).

Task 6: Pilot (Treatability) Studies

Pilot (treatability) studies may be required for a detailed analysis of remedial alternatives, as set forth in WAC 173-340-350(9)(c). While the site characterization effort to date has been substantial and sufficient for the RI, certain pilot studies are indicated to complete the FS. The initial proposed approach to complete Pilot Studies at the Site is presented below. Specific task details will be documented in the RA/FS Work Plan.

DNAPL Recovery Pilot Study

Because of the apparent widespread and discontinuous occurrence of dense, non-aqueous phase liquids ("DNAPL") at the Site, DNAPL recovery is not expected to be the sole long-term remedy to prevent the release of contaminants to Lake Washington. However, there are at least a few locations where DNAPL in clean sands have been identified. Local product removal will improve Site conditions by decreasing the potential for future migration and providing a permanent decrease in contaminant mass.

To better assess the feasibility of DNAPL recovery and other cleanup/source control alternatives, it is essential to understand DNAPL distributions, volumes, composition and fluid properties. To evaluate DNAPL recovery, product pumping tests will be performed in recovery wells located in at least three area of the Site where product is indicated. The testing will be used to assess recovery rates, determine fluid properties, and evaluate disposal and recycling alternatives. The testing will be conducted over a several month period to obtain sufficient information on potential inflow rates and volumes. Recovered product sampling will also be conducted to assess the fluid quality for disposal. Data will be summarized in the FS (Task 7), and will be used to assess DNAPL recovery and containment alternatives as part of the FS.

Sediment Cap Pilot Study (if needed based on results of initial sampling)

Depending on the outcome of the initial sediment and porewater sampling (included as a component of Tasks 4 and 7), it may be necessary to undertake a sediment cap pilot study to determine the effectiveness of sediment capping in certain areas of the Site. The pilot study

would support the FS, and would provide important information on cap constructability and water quality protection capabilities of sediment capping remedies.

Biosparging Pilot Test (if needed based on results of initial sampling)

Biosparging is a viable cleanup technology for deep groundwater under various cleanup alternatives. To assess the effectiveness of biosparging for treatment of site groundwater, a pilot test may be conducted. The pilot test would be conducted in the deep aquifer outside of areas of DNAPL occurrence to assess concentration changes and provide physical evidence of both horizontal and vertical airflow influences.

Deliverables:

Draft and Final Pilot Study Work Plans (combined with RA/FS Work Plans).

Task 7: Feasibility Study

A detailed analysis of the remedial alternatives to be identified in the RA/FS Work Plan will be presented in the FS. When the detailed analysis of remedial alternatives has been completed, a FS Report will be prepared.

Deliverables:

Draft and Final Feasibility Study Reports (combined with Risk Assessment Reports).

Task 8: Interim Remedial Actions

Interim remedial actions may be undertaken on a limited basis prior to issuance of the Cleanup Action Plan (CAP) for the site. Prior to initiating any interim remedial action, Work Plans will be prepared and submitted to Ecology for approval.

Deliverables:

Draft and Final Interim Remedial Action Work Plans (as appropriate).

Draft and Final Interim Remedial Action Evaluation Reports (as appropriate).

Task 9: Progress Reporting

The Respondents will provide quarterly progress letter reports to Ecology from the effective date of this Amendment until completion of the RA/FS. These letter reports will present a summary of work completed, work planned for the next quarter, and significant findings.

Deliverables:

Quarterly Progress Letters.

SCHEDULE

The proposed schedule for conducting remaining tasks addressed under this Amendment is as follows:

Task	Schedule
Draft Expedited Dry Season Mudline and Sediment Porewater Sampling Work Plan	August 12, 2002
Initiate Expedited Dry Season Mudline and Sediment Porewater Sampling	August 23, 2002
Draft Risk Assessment and Feasibility Study Work Plan	60 days after close of public comment
Final Risk Assessment and Feasibility Study Work Plan	30 days after resolution of Ecology comments on the Draft Risk Assessment and Feasibility Study Work Plan, or 15 days after the effective date of the Agreed Order Amendment, whichever is later
Initiate Wet Season Mudline Well Sampling	January to March, 2003
Initiate Pilot Studies	90 days after receipt of final laboratory results from wet season mudline well sampling, or within 60 days of required permit approvals (as applicable), whichever is later
Draft Baseline Risk Assessment and Feasibility Study	150 days following receipt of final laboratory results from all completed Pilot Studies
Final Baseline Risk Assessment and Feasibility Study	60 days after resolution of Ecology comments on the Draft Baseline Risk Assessment and Feasibility Study